



NOAA RESEARCH • ESRL • PHYSICAL SCIENCES DIVISION

PSD Strategic Priorities and Review Themes

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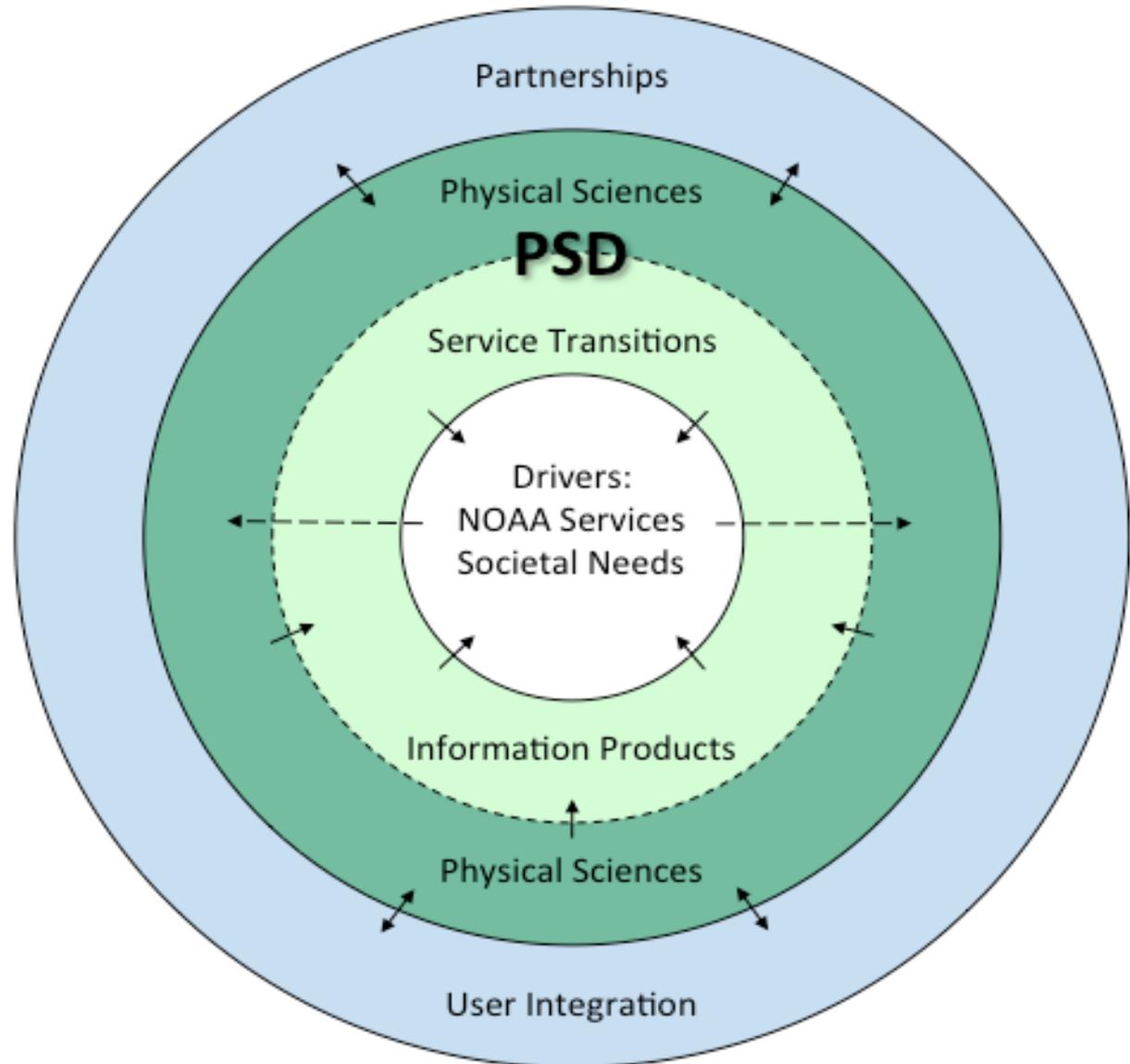
Science Review
12-14 May 2015
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Planning Process in Four Steps

- 1) **Something new** (Scientists)
- 2) **Something new** (Reorganization)
- 3) **Review** (You)
- 4) **Renew** (the Plan)

Core Strategic Factors



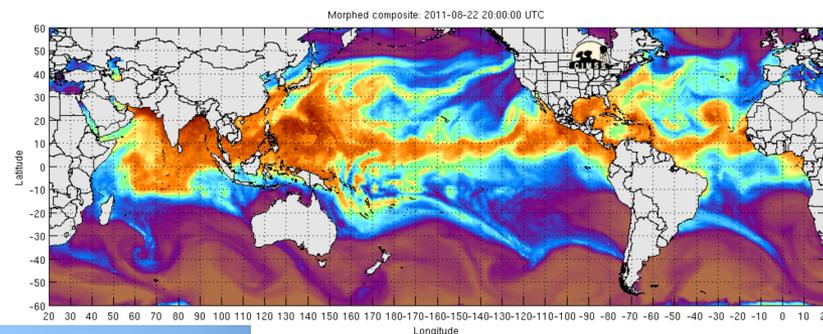
PSD Scientific Expertise

➤ **Problem-focused observations**

➤ **Physical Sciences Research**

- **Processes**
- **Phenomena**
- **Predictability**
- **Predictions**

+ **Partnerships**



Science and Societal Challenges

Priority research areas:

- **Extremes**
- **Water**
- **Arctic**



From the Past to the Future: Example

An integrated information system for decision support on water-related risks and impacts



Examples of potential PSD Contributions

Past to Present: Reanalyses, attribution, and assessments of past and ongoing conditions and their impacts. Improved real-time observations and monitoring.

Future: Seamless forecasts of water-related risks across time scales

Needs for observations, process understanding and user interactions extend across all time scales

PSD Draft Strategic Goals

Overarching Science Goals (adapted for presentation)

1. **Develop new knowledge and capabilities to explain observed weather and climate extremes, variations, trends, and their impacts.**
2. **Identify new sources of predictive skill and improve predictions of weather, water, and climate through physical sciences research and observations.**

Priority Research Goals

- 1. Rigorously characterize and predict weather, water, and climate extremes and their uncertainties.**
- 2. Develop scientific capabilities to predict conditions associated with too much and too little water.**
- 3. Increase process understanding of the coupled Arctic system and Arctic-lower latitude interactions to improve forecasts.**

Summary of Strategic Priorities

Overarching Science Goals

1. **Understand** (explanations are the product)
2. **Predict**

Priority Research Goals

1. **Extremes**
2. **Water**
3. **Arctic**

Key science questions, research objectives, and indicators of success are defined for each Goal.

Review Themes

The **Oral Sessions** are organized by capabilities:

1. **Observing** the Physical System (next)
2. **Understanding** the Physical System
3. **Modeling** the Physical System
4. **Research to Applications, Operations and Services**

**Together, these constitute a connected, end-to-end system.
They are best understood in this context.**